

# **The Influence of National Culture on Aviation Safety: Developing a National Culture Factors Index for Incident Analysis**

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## **Abstract**

Research in the aviation sector has linked variation in national culture profiles to diverse incident rates and contributing factors across countries. While research has examined cultural differences globally, fewer studies focus on identifying specific behavioural indicators of how national culture might negatively influence aviation incidents. This study aimed to identify the key cultural dimensions contributing to aviation incidents and develop an index of observable behaviours reflecting these cultural factors that could be used to support aviation incident analysis. Findings from a systematic literature review on the influence of national culture on aviation safety, and interviews with 16 experienced aviation incident investigators from Indonesia and Australia, along with Hofstede's Culture Dimensions were used to inform the development of the national culture index. The resulting national culture taxonomy includes nine key cultural indicators across three dimensions: Power Distance, Collectivism, and Uncertainty Avoidance, with corresponding behavioural examples for both general and aviation contexts. User testing with 30 postgraduate students revealed the taxonomy effectively helped participants identify national culture factors in incident reports. Usability results indicated that participants found the taxonomy user-friendly and were confident in using it for the analysis task. The unique element of the study lies in providing aviation incident investigators with a clear set of behavioural markers to promote culturally sensitive safety analyses and potentially develop culture-specific interventions. The research also has the potential to inform future studies on the impact of national culture on human behaviour across other transportation modes and industrial sectors.

## **Keywords**

Aviation, human factors, incident analysis, national culture, safety.

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## **Biographies**

**Gradiyan Budi Pratama** is a researcher from Indonesia. He has a background in Industrial Engineering and has been involved in several aspects of human factors research, including transportation safety, design for people with disability, and usability engineering. Gradiyan is a lecturer in the Faculty of Industrial Technology, Institut Teknologi

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